



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/739,994

12/18/2000

Mikael Bisgaard-Bohr

9684

4293

26890

7590

03/12/2007

JAMES M. STOVER

NCR CORPORATION

1700 SOUTH PATTERSON BLVD, WHQ4

DAYTON, OH 45479

EXAMINER

NGUYEN, CINDY

ART UNIT

PAPER NUMBER

2161

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

03/12/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/739,994	BISGAARD-BOHR ET AL.	
	Examiner	Art Unit	
	Cindy Nguyen	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/18/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-9,11-17 and 19-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-9,11-17 and 19-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is response to communication filed 10/18/06.

Terminal Disclaimer

The terminal disclaimer filed on 10/18/06 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of the full statutory term prior patent no. 6,947,878 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

1. Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1, 3, 6-9, 11, 14-17, 19, 23-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. This claimed subject matter lacks a practical application of a judicial exception (law of nature, abstract idea, naturally occurring article/phenomenon) since it fails to produce a useful, concrete and tangible result. Specifically, the claimed subject matter does not produce a tangible result because the claimed subject matter fail to produce a result that is limited to having a real world value rather than a result that may be interpreted to be abstract in

Art Unit: 2161

nature as, for example, a thought, a computation or manipulated data. More specifically, the claimed subject matter provides for data structure per se, nothing is being done in the data structure, does not produce any tangible result. This produced result remains in the abstract and, thus, fails to achieve the required status of having real world value.

2. Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 6-9,11, 14-17, 19, 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chadha et al. (US 6301575) (hereafter Chadha) in view of Bruce Moxon, "Data mining: the Golden Promise", Copyright 1997 Miller Freeman, Inc. (hereafter Bruce).

Regarding claim 1, Chadha disclose: a data structure (physical data model, col. 8, lines 15, Chadha), for analyzing retail transactional data (analysis of market-basket data, col. 8, line 66, Chadha) in a computer-implemented data mining system (124, fig. 1 and corresponding text, Chadha), wherein the data structure is a data model that

Art Unit: 2161

defines the manner in which said retail transaction data is stored and organized within said data mining system said data model (i.e. a physical data model for association is typically organized in a schema of the form of a transaction identifier and an item transaction-id, item-id), hereafter referred to as a SC data mode, col. 8, lines 15-33, Chadha), said data model comprising:

a basket database table that contains summary information about the transactional data (i.e. as the mining data was drawn from sales data of a retail store chain, which transactions drawn over various periods of time. The data has an average of 12 items per sale as summary information about transactional data, col. 15, lines 21-29, Chadha), an item database table that contains information about individual items referenced in the transactional data (i.e. as the multiple column model (of the table), for example, for transaction-1, if three items was purchased, the MC data model would show as transaction-1 Item-1, Item-2, Item-3, col. 8, lines 53-60), a department database table that contains aggregate information about the transactional data (i.e. obtain candidate itemsets (item information) of data from the multi-column data store, each itemset being a combination of a number of rows of the multi-column data store, col. 10, lines 48-55, Chadha)¹.

However, Chadha didn't disclose: the data model is mapped to aggregate the transactional data for cluster analysis of shopping behavior. On the other hand, Bruce discloses discloses: the data model is mapped to aggregate the transactional data for cluster analysis of shopping behavior (i.e. as matching algorithms are used in data

mining system to determine the key relationships in the data, the models are used develop predictive classifiers as shopping trend, behavior, etc... page 3, last line to page 4, line 3 and fig. 3 on page 4, Bruce). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include data model is mapped to aggregate the transactional data for cluster analysis of shopping behavior in the combination system of Chadha as taught by Bruce. The motivation being to enable the data mining system provided these discovery-based techniques to develop models that expose fundamental interrelationships found in the data and capable of examining numerous multidimensional data relationships, example in the retail industry, they are used to analyze the purchase of goods and to develop targeted marketing campaigns (page 5, 2nd paragraph, Bruce).

In addition, Chadha/Bruce discloses wherein the data model is accessed from a relational database managed by a relational database management system (col. 5, lines 15-16, Chadha).

Regarding claim 9, Chadha disclose: a method for analyzing retail transactional data (analysis of market-basket data, col. 8, line 66, Chadha) in a computer-implemented data mining system (124, fig. 1 and corresponding text, Chadha) comprising: generating a data structure (col. 8, lines 19-21) in the computer-implemented data mining system (124, fig. 1 and corresponding text, Chadha), wherein is a data model (physical data model, col. 8, lines 15, Chadha) that defines the manner in which said retail transaction data is stored and organized within said data mining

¹ Shopping related data e.g., retail transaction, itemdata, department data are stored in tables in relational

system said data model (i.e. a physical data model for association is typically organized in a schema of the form of a transaction identifier and an item transaction-id, item-id), hereafter referred to as a SC data mode, col. 8, lines 15-33, Chadha), said data model comprising: a basket database table that contains summary information about the transactional data (i.e. as the mining data was drawn from sales data of a retail store chain, which transactions drawn over various periods of time. The data has an average of 12 items per sale as summary information about transactional data, col. 15, lines 21-29, Chadha), an item database table that contains information about individual items referenced in the transactional data (i.e. as the multiple column model (of the table), for example, for transaction-1, if three items was purchased, the MC data model would show as transaction-1 Item-1, Item-2, Item-3, col. 8, lines 53-60), a department database table that contains aggregate information about the transactional data (i.e. obtain candidate itemsets (item information) of data from the multi-column data store, each itemset being a combination of a number of rows of the multi-column data store, col. 10, lines 48-55, Chadha);

Mapping the data model to aggregate the transactional data for cluster analysis of shopping behavior (i.e. as matching algorithms are used in data mining system to determine the key relationships in the data, the models are used develop predictive classifiers as shopping trend, behavior, etc... page 3, last line to page 4, line 3 and fig. 3 on page 4, Bruce). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include data model is mapped to aggregate the

database 116, fig. 1. a data model associated/maps various data to find a shopping pattern in relational

Art Unit: 2161

transactional data for cluster analysis of shopping behavior in the combination system of Chadha as taught by Bruce. The motivation being to enable the data mining system provided these discovery-based techniques to develop models that expose fundamental interrelationships found in the data and capable of examining numerous multidimensional data relationships, example in the retail industry, they are used to analyze the purchase of goods and to develop targeted marketing campaigns (page 5, 2nd paragraph, Bruce).

In addition, Chadha/Bruce discloses wherein the data model is accessed from a relational database managed by a relational database management system (col. 5, lines 15-16, Chadha).

Regarding claim 17, Chadha disclose: an apparatus for analyzing retail transactional data (analysis of market-basket data, col. 8, line 66, Chadha) in a computer-implemented data mining system (124, fig. 1 and corresponding text, Chadha) comprising: means for generating a data structure (col. 8, lines 19-21) in the computer-implemented data mining system (124, fig. 1 and corresponding text, Chadha) means for generating a data structure is a data model that defines the manner in which said retail transaction data is stored and organized within said data mining system said data model (i.e. a physical data model for association is typically organized in a schema of

database tables are used to store data.

the form of a transaction identifier and an item transaction-id, item-id), hereafter referred to as a SC data mode, col. 8, lines 15-33, Chadha), said data model comprising: a basket database table that contains summary information about the transactional data (i.e. as the mining data was drawn from sales data of a retail store chain, which transactions drawn over various periods of time. The data has an average of 12 items per sale as summary information about transactional data, col. 15, lines 21-29, Chadha), an item database table that contains information about individual items referenced in the transactional data (i.e. as the multiple column model (of the table), for example, for transaction-1, if three items was purchased, the MC data model would show as transaction-1 Item-1, Item-2, Item-3, col. 8, lines 53-60), a department database table that contains aggregate information about the transactional data (i.e. obtain candidate itemsets (item information) of data from the multi-column data store, each itemset being a combination of a number of rows of the multi-column data store, col. 10, lines 48-55, Chadha)

Means for mapping the data model to aggregate the transactional data for cluster analysis of shopping behavior (i.e. as matching algorithms are used in data mining system to determine the key relationships in the data, the models are used develop predictive classifiers as shopping trend, behavior, etc... page 3, last line to page 4, line 3 and fig. 3 on page 4, Bruce). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include data model is mapped to aggregate the transactional data for cluster analysis of shopping behavior in the combination system of Chadha as taught by Bruce. The motivation being to enable the

Art Unit: 2161

data mining system provided these discovery-based techniques to develop models that expose fundamental interrelationships found in the data and capable of examining numerous multidimensional data relationships, example in the retail industry, they are used to analyze the purchase of goods and to develop targeted marketing campaigns (page 5, 2nd paragraph, Bruce).

wherein the data model is accessed from a relational database managed by a relational database management system (col. 5, lines 15-16, Chadha).

Regarding claims 3, 11 and 19, most of the limitations of these claims have been noted in the rejection of claims 1, 9 and 17 above, respectively. In addition Chadha/Bruce disclose: Wherein the cluster analysis groups the transactional data into coherent groups according to perceived similarities in the transactional data (i.e. as clustering is used to identifies groups of closely related records that you can use as a starting point for exploring further relationships of interest, page 5, 7th paragraph, lines 1-3 , Bruce).

Regarding claims 6, 14 and 22, all the limitations of these claims have been noted in the rejection of claims 1, 9 and 17, respectively. In addition, Chadha/Bruce discloses: wherein the data model is mapped into a single flat table format to produce a correct level of aggregation for statistical analysis (i.e. the transaction-id value would be repeated for every item bought in that transaction, col. 8, lines 20-33, Chadha).

Regarding claims 7, 15 and 23, all the limitations of these claims have been noted in the rejection of claims 1, 9 and 17, respectively. In addition, Chadha/Bruce disclose: wherein the data model is mapped into a database view to produce a correct level of aggregation for statistical analysis (i.e. as classic market-basket analysis treats the purchase of a number of items as a single transaction. The desire is to find sets of items that are frequently purchased together in order to understand and exploit natural buying patterns, page 5, 1st paragraph, Bruce).

Regarding claims 8, 16 and 24, all the limitations of these claims have been noted in the rejection of claims 1, 9 and 17 above, respectively. In addition, Chadha/Bruce discloses: wherein the data model is comprised of one row per transaction in the transactional data (i.e. as in single column data model, the transaction-id value would be repeated for every item bought in that transaction, col. 8, lines 20-36, Chadha).

4. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chadha et al. (US 6301575) (hereafter Chadha) in view of Bruce Moxon, "Data mining: the Golden Promise", Copyright 1997 Miller Freeman, Inc. (hereafter Bruce) and further in view of Fayyad et al. (US 6263337).

Regarding claims 25-27, all the limitations of these claims have been noted in the rejection of claims 1, 9 and 17, respectively. In addition, Chadha/Bruce didn't disclose: wherein the cluster analysis utilizes a Gaussian Mixture Model. On the other hand, Fayyad discloses: wherein the cluster analysis utilizes a Gaussian Mixture Model (120,

Art Unit: 2161

fig. 4 and corresponding text and col. 9, lines 22-67, Fayyad). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include the cluster analysis utilizes a Gaussian Mixture Model in the combination system of Chadha/Bruce as taught by Fayyad. The motivation being to enable the system to process using Gaussian mixture model for better clustering by applied to a mixture of Gaussians justified criteria for deciding which data can be summarized .

Contact information

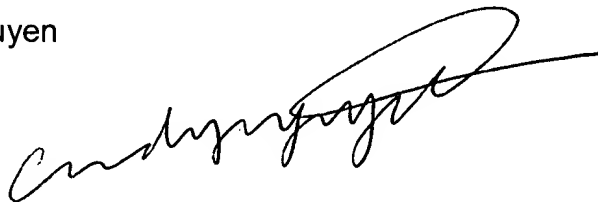
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cindy Nguyen whose telephone number is 571-272-4025. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2161

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cindy Nguyen

A handwritten signature in black ink, appearing to read 'Cindy Nguyen', with a long horizontal flourish extending to the right.